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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/080,789	02/21/2002	Bevan Staple	019930-006100US	9867

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EXAMINER

HE, AMY

ART UNIT

PAPER NUMBER

2858

DATE MAILED: 07/23/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/080,789

Applicant(s)

STAPLE ET AL.

Examiner

Amy He

Art Unit

2858

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-25 is/are rejected.
- 7) ☒ Claim(s) 26 and 27 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21, February 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

1. Claims 1, 5, 11-12, 16, 18,19, 23 and 25 are rejected under 35 U.S.C. 102(e) as being anticipated by Garverick et al. (US Pub NO. 2002/0106144)

Referring to claim 12, Garverick discloses a MEMS device (ESA array 10 in Figure 1) comprising:

a moveable element (mirrors 12) configured to move to a position defining a select state of the MEMS device upon activation of an electrode (applying a voltage to the electrode 78, [0041], line 9);

a sensing configuration (control system, page 2 [0026], line 1; the combination of 26 and 30)having a first and second regions, wherein the first and second regions are electrically coupled (when the mirror tilt to one side, corresponding to a switched state, page 2, [0026] line 5) when the moveable element is in the position and electrically uncoupled when the moveable element is not in the position; and

a detector (control system, page 2 [0026], line 1; the combination of 26 and 30) configured to indicate when the first and second regions are electrically coupled.

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Referring to claim 19, Garverick discloses a microstructure for steering light, the microstructure comprising:

a substrate (50, 52);

a structural linkage (66) connected with the substrate and supporting a moveable element (mirror 12) disposed to orient a reflective coating;

an electrode (78) disposed to provide an electrostatic force on the moveable element upon actuation; and

a sensing configuration (control system, page 2 [0026], line 1; the combination of 26 and 30) having first and second regions that are electrically coupled only when the moveable element is in a position that defines a select state (switched state, page 2, [0026] line 5) for the microstructure.

Referring to claims 1 and 11, They are the method claim corresponding to the rejected apparatus claim, claims 12 and 19. They are rejected for the same reasons as stated above for the rejection of the apparatus claims.

Referring to claims 5, 16 and 23, Garverick discloses the first and second regions comprise first and second waveguide ports (of the WDM, page 2, [0023], line 8); and measuring the second region comprises measuring impedance between the waveguide ports.

Referring to claim 18, Garverick discloses a dynamic refresh driver (14) electrically coupled with the first region (18) and configured to periodically provide an ac signal to the first region.

Referring to claim 25, Garverick discloses a plurality of similar microstructures in an array.

2. Claims 1, 7-12, 17-19 and 24 are rejected under 35 U.S.C. 102(e) as being anticipated by Vaganov (US Pub NO. 2003/0039016)

Referring to claim 12, Vaganov discloses a MEMS device (in Figure 1B) comprising:

- a moveable element (mirror 2) configured to move to a position defining a select state of the MEMS device upon activation of an electrode (8);

- a sensing configuration having a first (18) and second regions(16), wherein the first and second regions are electrically coupled (when 18 contact 16 at contact point 19) when the moveable element is in the position and electrically uncoupled when the moveable element is not in the position; and

- a detector (19) configured to indicate when the first and second regions are electrically coupled.

Referring to claim 19, Vaganov discloses a microstructure for steering light (in Figure 2A-2B), the microstructure comprising:

- a substrate (see substrate in Figure 2A);

- a structural linkage (10) connected with the substrate and supporting a moveable element (mirror 2) disposed to orient a reflective coating;

- an electrode (8A) disposed to provide an electrostatic force on the moveable element upon actuation; and

a sensing configuration having first (18) and second (16) regions that are electrically coupled (at point 19) only when the moveable element is in a position that defines a select state for the microstructure.

Referring to claims 1 and 11, they are the method claim corresponding to the rejected apparatus claim, claims 12 and 19. They are rejected for the same reasons as stated above for the rejection of the apparatus claims.

Referring to claim 7, 17 and 24, Vaganov discloses that moveable element in contact with the first and second regions when in a select state (when 18 contact 16 at point 19).

Referring to claim 8, Vaganov discloses first and second regions comprise electrically conductive regions (18 and 16).

Referring to claim 9-10, Vaganov discloses periodically changing the voltage and measuring the second region and restoring a voltage to an electrode configured to provide an electrostatic force on the moveable element (see abstract).

Referring to claim 18, Vaganov discloses a dynamic refresh driver (suspension element, abstract, line 5) electrically coupled with the first region (18) and configured to periodically provide an ac signal to the first region.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 2-4, 13-15 and 20-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Vaganov (US Pub NO. 2003/0039016), in view of Glance (U. S. Patent No. 6, 240, 223).

Referring to claims 2-4, 13-15 and 20-22, Garverick discloses a sensing configuration. Garverick does not disclose a sensing configuration comprises a field-effect transistor or a BJT having a source/emitter region corresponding to the first region and a drain/collector region corresponding to the second region.

Glance discloses a sensing configuration comprises a field-effect transistor (column 7, claim 13).

A person of ordinary skill in the art would find it obvious to modify Garverick to use a field-effect transistor, as taught by Glance, or to use a BJT for sensing the switched states since it is known in the art to use field-effect transistor or BJT as a switch for switching purposes and also since it has been held to be within the general skill of a worker in the art to select a known tool for a known purpose on the basis of its suitability for the intended use as a matter of obvious design choice (*In re Leshin*, 227 F.2d 197, 125 USPQ 416 (CCPA)).

Allowable Subject Matter

4. Claims 26-27 are objected to as being dependent upon a rejected base claim (claim 19), but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Amy He whose telephone number is (703) 305-3360.

The examiner can normally be reached on 8:30am-5pm Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's Supervisor, N. Le can be reached on (703) 308-0750.

The official Fax numbers for the organization are (703-872-9318) Before-Final and (703-872-9319) After-Final Office actions. Any inquiry of a general nature relating to this application should be directed to the receptionist at (703) 305-4900.

ah

AH
July 14, 2003


JAY PATIDAR
PRIMARY EXAMINER